

NASA TECH BRIEF

Marshall Space Flight Center



NASA Tech Briefs announce new technology derived from the U.S. space program. They are issued to encourage commercial application. Tech Briefs are available on a subscription basis from the National Technical Information Service, Springfield, Virginia 22151. Requests for individual copies or questions relating to the Tech Brief program may be directed to the Technology Utilization Office, NASA, Code KT, Washington, D.C. 20546.

A Proposed Hand-Tool Assembly for Robots

The problem:

In general, robots and remote manipulators cannot hold, operate, and release hand tools. Some types of hand tools can be fitted with makeshift brackets that allow the robot to hold them, but hand tools that open and close cannot be used without considerable modification to the robot.

The solution:

A proposed end effector (that part of the robot which does the task) will grasp, hold, operate, and release modified hand tools.

How it's done:

A proposed Terminator Kit Assembly (TKA) includes all the features that a mechanical manipulator needs to

use hand tools for maintenance, repair, or assembly work. It includes a tool box, a hand interface, and a power unit. The tool box holds the hand tools and, on command, releases them to the hand interface which accepts and operates them. The power unit supplies the "muscle" for the assembly. Figures 1 and 2 depict the assembly with two different types of tools. The same handle geometry may be used for most tools.

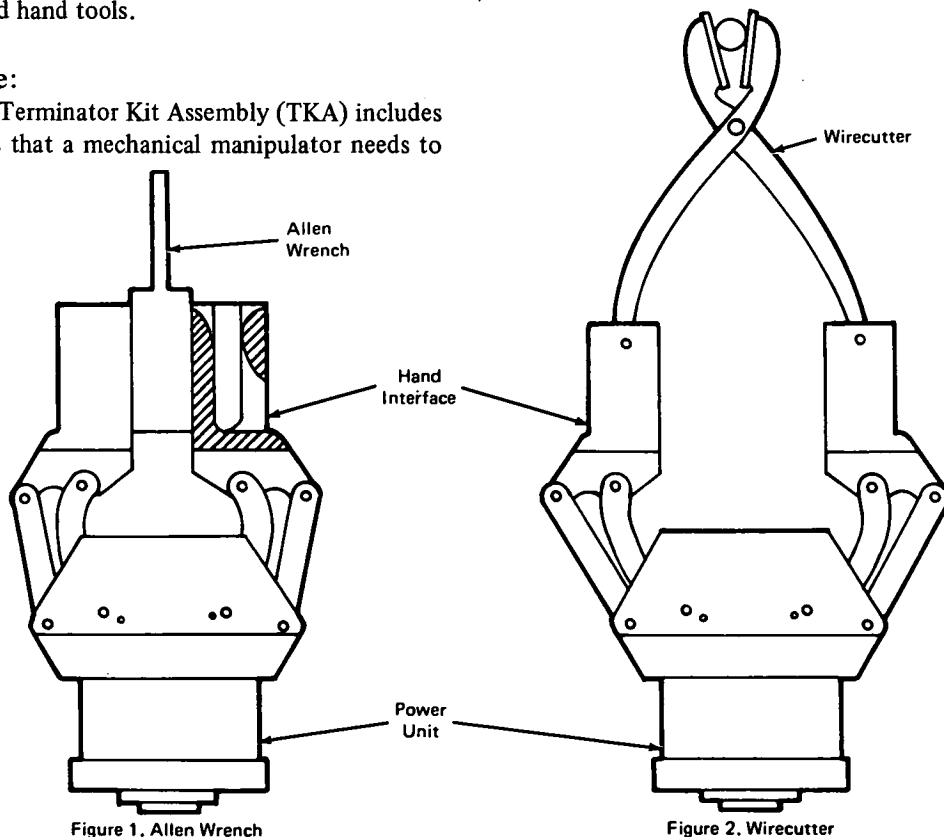


Figure 1. Allen Wrench

Figure 2. Wirecutter

TERMINATOR KIT ASSEMBLY WITH HAND TOOLS

(continued overleaf)

Notes:

1. This device was designed for use with the ADAMS manipulator described in Tech Brief B73-10204.
2. The TKA is being studied as a possible prosthetic device for amputees.
3. Requests for further information may be directed to:
Technology Utilization Officer
Marshall Space Flight Center
Code A&PS-TU
Marshall Space Flight Center, Alabama 35812
Reference: B73-10216

Patent status:

Inquiries concerning rights for the commercial use of this invention should be addressed to:

Patent Counsel
Marshall Space Flight Center
Code A&PS-PAT
Marshall Space Flight Center, Alabama 35812

Source: D. H. Dane and H. T. Blaise
Marshall Space Flight Center
(MFS-22266)